Amendments to the Specification:

The following amendments to the Specification are submitted for consideration. Please amend the title as provided below. Support for this amendment may be found throughout the specification and in the claims.

--MULTI-LAYER HOLOGRAPHIC DATA READING ~~RECORDING~~ METHOD--

Please amend paragraph 6 as provided below. Support for this amendment may be found throughout the specification and in the claims.

-- [0006] Figure 3 is a depiction of the optical arrangement for reading ~~making~~ holograms;--

Please amend paragraph 18 as provided below. Support for this amendment may be found throughout the specification and in the claims.

-- [0018] Alternately, the two optical beams 110, 112 can be of the same wavelength, and means to vary the optical path length, L, in one of the beams can be used to cause the interference layer 116 to progress vertically in a controlled manner rather than in a continuous fast sweep. The optical path length, L, can be changed by using, for example, an electro-optic crystal, or piezoelectric mirror 312 (Fig. 3). This method of moving the interference layer 116 by changing the optical path length, L, has the advantage of providing random addressability of the media layers 104.

[0018.1] Referring to Fig. 3, there are shown various components of an exemplary embodiment of an optical arrangement for reading the holographic memory device 100, 200. A first light source 314 and a second light source 302 produce the two optical beams. The primary optical beam 316 impinges upon the piezoelectric mirror 312, having a thickness (d). A secondary optical beam 304 impinges upon a beamsplitter 306. A portion of the secondary optical beam 310 is directed to the piezoelectric mirror 312 and joins the path of the emergent primary optical

beam 316. The primary optical beam 316 and the portion of the secondary optical beam 310 are then modulated by a modulator 318 for varying and substantially separating at least one of frequency and state of polarization of the primary optical beam 316 from the same property of the secondary optical beam 304. The first optical beam 310 emerges from the modulator 318 and is then focused by a first lens 322 upon an appropriate sector address 118 of the holographic recording media 104. Similarly, the secondary optical beam is focused by a second lens 320 and directed as a second optical beam 308 to the appropriate sector address 118 of the holographic recording media 104.--

Please amend paragraph 21 as provided below. This amendment to paragraph 21 addresses three typographical errors.

-- [0021] In Figure 9, a method ~~a method~~ of reading a set of data stored in a holographic memory device is shown. A first optical beam 110 is made to interfere with a second optical beam 112 at a prescribed angle, θ, therebetween at a hologram 104 in the holographic memory device. This generates an interference pattern. An N^{th} diffraction order wavefront 126, where N is an integer; is diffracted from the hologram 114 and sensed by the detector 404. The N^{th} diffraction order wavefront 126 includes a correlation peak signal and the holographically stored data. The holographically stored data is correlated with the correlation peak signal. If a correlation peak occurs, ~~deconvolving~~ the holographically stored data and the correlation peak signal are deconvolved and the set of data in the N^{th} diffraction order wavefront 126 ~~126~~ is read. The first optical beam 110 and the second optical beam 112 may emanate from an extended light source or a light source with a broad spectral composition, or may emanate from a coherent light source and be at slightly different wavelengths, $\lambda 1$, $\lambda 2$.--

Please amend paragraph 22 as provided below. This amendment to paragraph 22 addresses one typographical error.

-- [0022] In Figure 10, a method of reading a set of data stored in a holographic memory device is shown. A first optical beam 110 is made to interfere with a second optical beam 112 at a

prescribed angle, θ, therebetween at a hologram 104 of the holographic memory device. An N^{th} diffraction order wavefront 126, where N is an integer, is diffracted from the hologram 114 and sensed at a detector 404~~detector 408~~. The N^{th} diffraction order wavefront 126 is correlated with a correlation pattern 128 which includes the set of data. If a correlation peak occurs, the N^{th} diffraction order wavefront 126 and the correlation pattern 128 are deconvolved and the set of data in the N^{th} diffraction order wavefront 126 is read out. The deconvolution can be performed by standard digital image processing methods. The first optical beam 110 and the second optical beam 112 may also emanate from an extended light source or a light source with a broad spectral composition, or may emanate from a coherent light source and be at slightly different wavelengths, $\lambda 1$, $\lambda 2$.--